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| EXAMINER | |
|---|---|
| WANG, VICTOR W | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/634,278 | GUY ET AL. | |
| | Examiner | Art Unit | |
| | Victor W. Wang | 2189 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *Amendment filed 31 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-62* is/are pending in the application.

4a) Of the above claim(s) *14-19, 33-39, 55-62* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,20-32 and 40-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *31 May 2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. This office action has been issued in response to amendment filed 31 May 2007. Claims 1-13, 20-32, 40-54 remain pending. All objections and rejections not repeated below are withdrawn. Applicant's arguments with respect to claims 1-13, 20-32, 40-54 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Objections*

2. Claims 1-13, 20-32, 40-54 are objected to because of the following informalities:

There are no comas or any other indication of separation between sentences within the claims, which makes reading difficult. The Examiner suggests using comas, instead of using only spaces, where appropriate. Appropriate correction is required.

Claim 1, recites the limitation "the hard disk address" in lines 6 of Claim 1. Examiner suggests changing the limitation to "the virtual hard disk address".

Claims 1 and 20 recites the limitation "the access command" in line 5 of Claim 1 and line 6 of claim 20. Examiner suggests changing the limitation to "the hard disk access command". All claims dependent on claims 1 and 20 which recites the limitation "the access command" should be changed to "the hard disk access command" where appropriate.

Claim 40, recites the limitation "the storage device address" in line 7 of Claim 40. Examiner suggests changing the limitation to "virtual storage device address"

Claim 7 and 8 recites the limitation "the response address" in line 2 of both claims. Examiner suggests changing the limitation to "the hard disk address".

*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1, 4, 10, 20, 22, 29, 40, 43, 49 and 54** are rejected under 35 U.S.C. 102(b) as being anticipated by Martinez (US 4498146).

As per claims 1, 20 and 40, Martinez discloses "A method for sharing a hard disk among multiple users of a computer, the method implemented on a sharing device coupled to the computer, the method comprising: receiving a hard disk access command including a virtual hard disk address translating the virtual hard disk address to a translated address forwarding to the hard disk the access command with the translated address in place of the hard disk address." as **["A job is a command specifying, inter alia, a read or a write operation, the disk 13a through 13h to which the operation is directed, an address on the disk 13a through 13h at which the operation is to commence" (column 6, lines 29-33), "the information which is supplied to the DFC processor 14 as part of a job includes an address at which the job is to commence. This address is a virtual address (VA)" (column 7, lines 17-20), "To associate the virtual address with a particular physical storage location, the virtual address must undergo a process of translation that modifies the virtual address and converts the virtual address into a real address" (column 7, lines 25-29), "The DFC processor 14 ends the routine of FIG. 7 by issuing directions to the head positioning and selection in circuitry 52 of the disk 13a (see FIG. 2) to seek out the track 54 in the disk media 50 which is addressed**

**by that real address" (column 9, lines 55-59). The examiner notes the differences between claims 1 and 20, and draws reference between the "virtual address" as disclosed by Martinez to applicant's "virtual hard disk address" in claim 1, and "hard disk address" in claim 2.]**

As per claims 4, 22 and 43, Martinez discloses "translating comprises: mapping the virtual hard disk address to a real hard disk address." as **["associate the virtual address with a particular physical storage location" (column 7, lines 25-27)]**

As per claims 10, 29 and 49, Martinez discloses "wherein the sharing device is one of a field programmable gate array (FPGA), a programmable logic unit (PLU), an application specific integrated circuit (ASIC)." as **[a disk file controller (DFC) present in Fig. 1]**

As per claim 54, Martinez discloses "The method of claim 40 wherein the storage device is a hard disk drive." as **[fig. 1]**

### *Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. **Claims 2, 21 and 41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez (US 4498146) and Wang (US 5619673).

As per claims 2, 21, and 41 Martinez discloses "further comprising: receiving a response to the access command from the hard disk" as **["When the circuitry 52 finds the addressed track 54, it sends a signal to the DFC processor 14 to indicate that seeking has been completed." (column 9, lines 62-64), where it is understood by the examiner that after the seek command is sent to hard disk, a response is received by the DFC];** but fails to disclose expressly "if the response includes a hard disk address, translating the hard disk address into a virtual disk address forwarding the response with the virtual disk address in place of the hard disk address."

Wang discloses "if the response includes a hard disk address, translating the hard disk address into a virtual disk address forwarding the response with the virtual disk address in place of the hard disk address." as **["the address translation unit converts the physical address input on bus to a virtual address, and then delivers it on the translated virtual address bus" (column 4, lines 51-53) where as it is understood by the examiner that a physical address input (response) is translated into virtual address and forwarded]**

Wang and Martinez are analogous art because they are from the same field of endeavor of data transfer management among a plurality of memory units.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer and storage system comprising of a device which receive an command to access a hard disk containing a virtual address, translating the virtual address into physical address, forwarding the physical address to the hard disk, and receiving a response from

the access command as described by Martinez and determine that if the response contains a hard disk physical address, the physical address would be translated into virtual address and sent as taught by Wang.

The motivation for doing so would have been because Wang teaches that **"reduce the size and complexities of the required hardware" (column 2, lines 9-10).**

9. **Claims 3 and 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez (US 4498146), Wang (US 5619673) and Shillo (US 2003/0110263).

As per claims 3 and 42, Wang and Martinez fails to disclose expressly "if the response includes a hard disk size, translating the hard disk size into a virtual disk size forwarding the response with the virtual disk size in place of the hard disk size."

Shillo discloses "if the response includes a hard disk size, translating the hard disk size into a virtual disk size forwarding the response with the virtual disk size in place of the hard disk size." as **["a physical storage space is reallocated to the application by redirecting each virtual storage segment of the combination to a corresponding physical storage segment" (paragraph 0019, lines 23-25), "This means that even though an application does not have all the physical disk resources required for running, it receives an indication from the network administrator 102 that all of these resources are available for it, where in fact its un-utilized resources are allocated to other applications. The application servers, therefore, only have knowledge about the sizes of their virtual disks instead of their physical disks." (paragraph 0046, lines 6-13), where it is understood that an application, receiving**

**information on its resource disk size, will receive virtual disk size information, which is calculated using actual hard disk size]**

Wang, Martinez and Shillo are analogous art because they are from the same field of endeavor of data transfer management among a plurality of memory units.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer and storage system comprising of a device which receive an command to access a hard disk containing a virtual address, translating the virtual address into physical address, forwarding the physical address to the hard disk, and receiving a response from the access command as described by Martinez and determine that if the response contains a hard disk physical address, the physical address would be translated into virtual address and sent as described by Wang and determine that if the response contains a hard disk size, the response would be changed into a virtual disk size as taught by Shillo

The motivation for doing so would have been because Shillo teaches that **"this increases the flexibility of the network, up to the limit of its operating system's formatting capability of the physical storage space" (paragraph 0043, lines 15-17).**

10. **Claims 7, 26 and 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez (US 4498146) Wang (US 5619673) and Mason (US 5319760)

As per claims 7, 26 and 46, Martinez discloses "wherein the translating the hard disk address comprises: mapping the response address to the virtual address" as **["associate the virtual address with a particular physical storage location" (column 7, lines 25-27)];** but fails to disclose expressly "by referring to a virtual device table."

Wang, Martinez and Mason are analogous art because they are from the same field of endeavor of data transfer management among memory units.

Mason discloses "wherein the mapping comprises: referring to a virtual device table." as **["using the page tables 85, 88, 90 in memory... the virtual address is translated to a physical address" (column 10, lines 39-42)]**

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer and storage system comprising of a device which receive an command to access a hard disk containing a virtual address, translating the virtual address into physical address, forwarding the physical address to the hard disk, mapping the virtual address to physical addresses and vice versa, as described by Martinez and determine that the mapping of the address refers to a table as taught by Mason.

The motivation for doing so would have been because Mason teaches that **"performance is improved" (column 2, lines 27-28).**

11. **Claims 8-9, 27-28, 47-48** are rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez (US 4498146), Wang (US 5619673) and Hasebe (JP 2000-66961).

As per claims 8, 27 and 47, Martinez and Wang fail to disclose expressly "wherein the translating the hard disk address comprises: subtracting an offset from the response address based on identifying information of an active virtual device."

Hasebe discloses "translating the hard disk address comprises: subtracting an offset from the response address based on identifying information of an active virtual device." as **["offset value is subtracted from the physical address on said medium defect list corresponding to**

**the specified offset value. As a result, the address translation method of a magnetic disk unit of changing said offset value until the obtained virtual logical address" (claim 1)]**

Hasebe, Wang and Martinez are analogous art because they are from the same field of endeavor of data transfer management among memory units.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer and storage system comprising of a device which receive an command to access a hard disk containing a virtual address, translating the virtual address into physical address, forwarding the physical address to the hard disk, mapping the virtual address to physical addresses and vice versa, as described by Martinez and determine that the translating from physical address to virtual address comprises of subtracting an offset from physical address as taught by Hasebe.

The motivation for doing so would have been because Hasebe teaches that **"conversion to a physical address from a logical address can be performed at high speed" (paragraph 0015)**

As per claims 9, 28 and 48, Martinez and Wang fail to disclose expressly "wherein the subtracting comprises: referring to a virtual device table to obtain the offset."

Hasebe discloses "wherein the subtracting comprises: referring to a virtual device table to obtain the offset." as **["offset value is subtracted from the physical address on said medium defect list corresponding to the specified offset value. As a result, the address translation method of a magnetic disk unit of changing said offset value until the obtained virtual logical address" (claim 1)]**

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer and storage system comprising of a device which receive an command to access a hard disk containing a virtual address, translating the virtual address into physical address, forwarding the physical address to the hard disk, mapping the virtual address to physical addresses and vice versa, as described by Martinez and determine that the translating from physical address to virtual address comprises of subtracting an offset obtained from a table from physical address as taught by Hasebe.

The motivation for doing so would have been because Hasebe teaches that **"conversion to a physical address from a logical address can be performed at high speed" (paragraph 0015)**

12. **Claims 5, 23, 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez (US 4498146) and Mason (US 5319760)

As per claims 5, 23 and 44, Martinez fails to disclose expressly "wherein the mapping comprises: referring to a virtual device table."

Mason discloses "wherein the mapping comprises: referring to a virtual device table." as **["using the page tables 85, 88, 90 in memory... the virtual address is translated to a physical address" (column 10, lines 39-42)]**

Mason and Martinez are analogous art because they are from the same field of endeavor of data transfer management among memory units.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer and storage system comprising of a device which receive an

command to access a hard disk containing a virtual address, translating the virtual address into physical address, forwarding the physical address to the hard disk, mapping the virtual address to physical addresses, as described by Martinez and determine that the mapping of the address refers to a table as taught by Mason.

The motivation for doing so would have been because Mason teaches that **"performance is improved" (column 2, lines 27-28).**

13. **Claims 6, 24-25, 45** rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez (US 4498146) and Stewart (US 5802604)

As per claims 6, 24 and 45, Martinez fails to disclose expressly "wherein the translating comprises: adding an offset to the virtual hard disk address based on virtual device identifying information stored in a virtual device table."

Stewart discloses "translating comprises: adding an offset to the virtual hard disk address based on virtual device identifying information stored in a virtual device table." as **["a fixed offset which may be added to the virtual page number of the virtual address of any one particular page table entry to yield the page frame number of the physical address of such one particular page table entry" (column 3, lines 23-26)]**

Stewart and Martinez are analogous art because they are from the same field of endeavor of data transfer management among memory units.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer and storage system comprising of a device which receive an command to access a hard disk containing a virtual address, translating the virtual address into

physical address, forwarding the physical address to the hard disk, and receiving a response from the access command as described by Martinez and determine that the translating comprises adding an offset to the virtual address based on information within a table as taught by Stewart.

The motivation for doing so would have been because Stewart teaches that **"result in a directly proportional increase in the speed of operation" (column 10, lines 33-35).**

As per claim 25, Martinez fails to disclose expressly "wherein the adding comprises: referring to a virtual device table to obtain the offset".

Stewart discloses "wherein the adding comprises: referring to a virtual device table to obtain the offset" as ["**providing a page table entry prototype containing a page frame number representing an offset between the physical address and the virtual address" (column 3, lines 11-13)]**

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer and storage system comprising of a device which receive an command to access a hard disk containing a virtual address, translating the virtual address into physical address, forwarding the physical address to the hard disk, and receiving a response from the access command as described by Martinez and determine that the translating comprises adding an offset, obtained from a table, to the virtual address based on information within a table as taught by Stewart.

The motivation for doing so would have been because Stewart teaches that **"result in a directly proportional increase in the speed of operation" (column 10, lines 33-35).**

14. **Claims 11-13, 30-32, 50-52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez (US 4498146) in view of Porterfield (US 6799316).

As per claims 11, 30 and 50, Martinez fails to disclose expressly "wherein the sharing device is coupled between the hard disk and a motherboard of the computer"

Porterfield discloses "wherein the sharing device is coupled between the hard disk and a motherboard of the computer." **[With respect to this limitation, Porterfield discloses "This graphics processor can be described by reference to FIG. 2, which illustrates a graphics/memory control unit 120 including a graphics processor unit 122 that communicates with a memory control unit 124." (column 4, lines 1-4), "Peripherals 114 and the graphics accelerator 110 communicate with main memory 106 and system logic 104 through the system bus 108. The standard system us 108 is currently the Peripherals Connection Interface (PCI).... PCI supports multiple peripheral components and add-in cards.... Three dimensional (3D) graphics applications, threatens to overload the PCI bus." (column 1, lines 37-52), where it is understood that the motherboard is an integral component of any computer. It is further understood that the memory control unit (sharing device) is placed on a separate graphics add-in card which also contains graphics processor, and communicates with a main memory thru a PCI bus, and these components are all placed on the motherboard.]**

Martinez, and Porterfield are analogous art because they are from the same field of endeavor of data transfer process methods.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer process method that contains a device that receives a virtual

address, translate the virtual address, and sends the translated address as described by Martinez and determine that the device is coupled on a graphics card coupled to both a motherboard and a main memory as taught by Porterfield.

The motivation would have been Porterfield teaches that **"the architecture of the present invention reduces the total system cost" (column 6, lines 23-24)**

As per claims 12, 31, and 51 Martinez fails to disclose expressly "wherein the sharing device is coupled to a motherboard included in the computer."

Porterfield discloses "wherein the sharing device is coupled between the hard disk and a motherboard of the computer." **[With respect to this limitation, Porterfield discloses "This graphics processor can be described by reference to FIG. 2, which illustrates a graphics/memory control unit 120 including a graphics processor unit 122 that communicates with a memory control unit 124." (column 4, lines 1-4), "Peripherals 114 and the graphics accelerator 110 communicate with main memory 106 and system logic 104 through the system bus 108. The standard system us 108 is currently the Peripherals Connection Interface (PCI).... PCI supports multiple peripheral components and add-in cards.... Three dimensional (3D) graphics applications, threatens to overload the PCI bus." (column 1, lines 37-52), where it is understood that the motherboard is an integral component of any computer. It is further understood that the memory control unit (sharing device) is placed on a separate graphics add-in card which also contains graphics processor, and communicates with a main memory thru a PCI bus, and these components are all placed on the motherboard.]**

Martinez, and Porterfield are analogous art because they are from the same field of endeavor of data transfer process methods.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer process method that contains a device that receives a virtual address, translate the virtual address, and sends the translated address as described by Martinez and determine that the device is coupled on a graphics card coupled to both a motherboard and a main memory as taught by Porterfield.

The motivation would have been Porterfield teaches that **"the architecture of the present invention reduces the total system cost" (column 6, lines 23-24)**

As per claim 13, 32 and 52 Martinez fails to disclose expressly "wherein the sharing device is included on a card to be coupled to a card slot in the computer."

Porterfield discloses "wherein the sharing device is coupled between the hard disk and a motherboard of the computer." **[With respect to this limitation, Porterfield discloses "This graphics processor can be described by reference to FIG. 2, which illustrates a graphics/memory control unit 120 including a graphics processor unit 122 that communicates with a memory control unit 124." (column 4, lines 1-4), "Peripherals 114 and the graphics accelerator 110 communicate with main memory 106 and system logic 104 through the system bus 108. The standard system us 108 is currently the Peripherals Connection Interface (PCI).... PCI supports multiple peripheral components and add-in cards.... Three dimensional (3D) graphics applications, threatens to overload the PCI bus." (column 1, lines 37-52), where it is understood that the motherboard is an integral**

**component of any computer. It is further understood that the memory control unit (sharing device) is placed on a separate graphics add-in card which also contains graphics processor, and communicates with a main memory thru a PCI bus, and these components are all placed on the motherboard.]**

Martinez, and Porterfield are analogous art because they are from the same field of endeavor of data transfer process methods.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer process method that contains a device that receives a virtual address, translate the virtual address, and sends the translated address as described by Martinez and determine that the device is coupled on a graphics card coupled to both a motherboard and a main memory as taught by Porterfield.

The motivation would have been Porterfield teaches that **"the architecture of the present invention reduces the total system cost" (column 6, lines 23-24)**

15. **Claim 53** is rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez (US 4498146) in view of McGrath (US 6671791).

As per claim 53, Martinez fails to disclose expressly "The method of claim 40 wherein the sharing device is included in the storage device."

McGrath discloses "the sharing device is included in the storage device." as **[fig. 17, where it is readily apparent that translator (device) is included within carrier medium (storage device)]**

Martinez and McGrath are analogous art because they are from the same field of endeavor of data transfer process methods.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the data transfer and storage system comprising of a device which receive an command to access a hard disk containing a virtual address, translating the virtual address into physical address, forwarding the physical address to the hard disk, and receiving a response from the access command as described by Martinez and determine that the device is included in the storage disk as taught by McGrath.

The motivation for doing so would have been because McGrath teaches that **"optimizations may include reordering the translated instructions for quicker execution, eliminating redundancies, etc." (column 25, lines 33-35).**

**Conclusion**

16. When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor W. Wang whose telephone number is (571) 272-9771. The examiner can normally be reached on Monday through Friday, 8:30am - 6:00pm. E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald Bragdon can be reached on (571) 272-4204. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Victor Wang
Patent Examiner
Art Unit: 2189
2 Aug 2007

Reginald D. Bragdon

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